

# TLB-2010-C

10 mW Full Band Tunable CW Laser Butterfly

## Full C Band Tunable CW Laser

### Features

- Wide tuning range using highly reliable DFB laser arrays
- Excellent wavelength stability with no possibility of mode hop
- CW output power of 10 mW
- Polarization Maintain Fiber

### Applications

- LR, LR2 and LH DWDM optical transport
- Large form factor full band tunable transponders

### Benefits

- DFB laser performance
- Simple control loops

*The **TLB-2010-C** is the second generation of compact 10 mW widely tunable transmission lasers built with Santur's own proprietary DFB laser array, MEMs coupling and packaging technology. Santur's technology provides for a highly efficient, small form factor full band tunable butterfly with the lowest power dissipation in the industry.*

*Ideally suited for use in a wide variety of DWDM Metro and LH systems, the Santur **TLB-2010-C** provides the best combination of performance features available, offering a unique combination of optical power, wide tunability, and low power dissipation. The **TLB-2010-C** includes an integrated wavelength locker and a uniquely stable DFB laser array.*

*High-power performance, reliability, ease of control, and economies of scale derived from the exclusive, proven technology, differentiate this product from others in the industry.*



TLB-2010-C-DS

This is a technical data sheet – parameters are subject to change without notice.

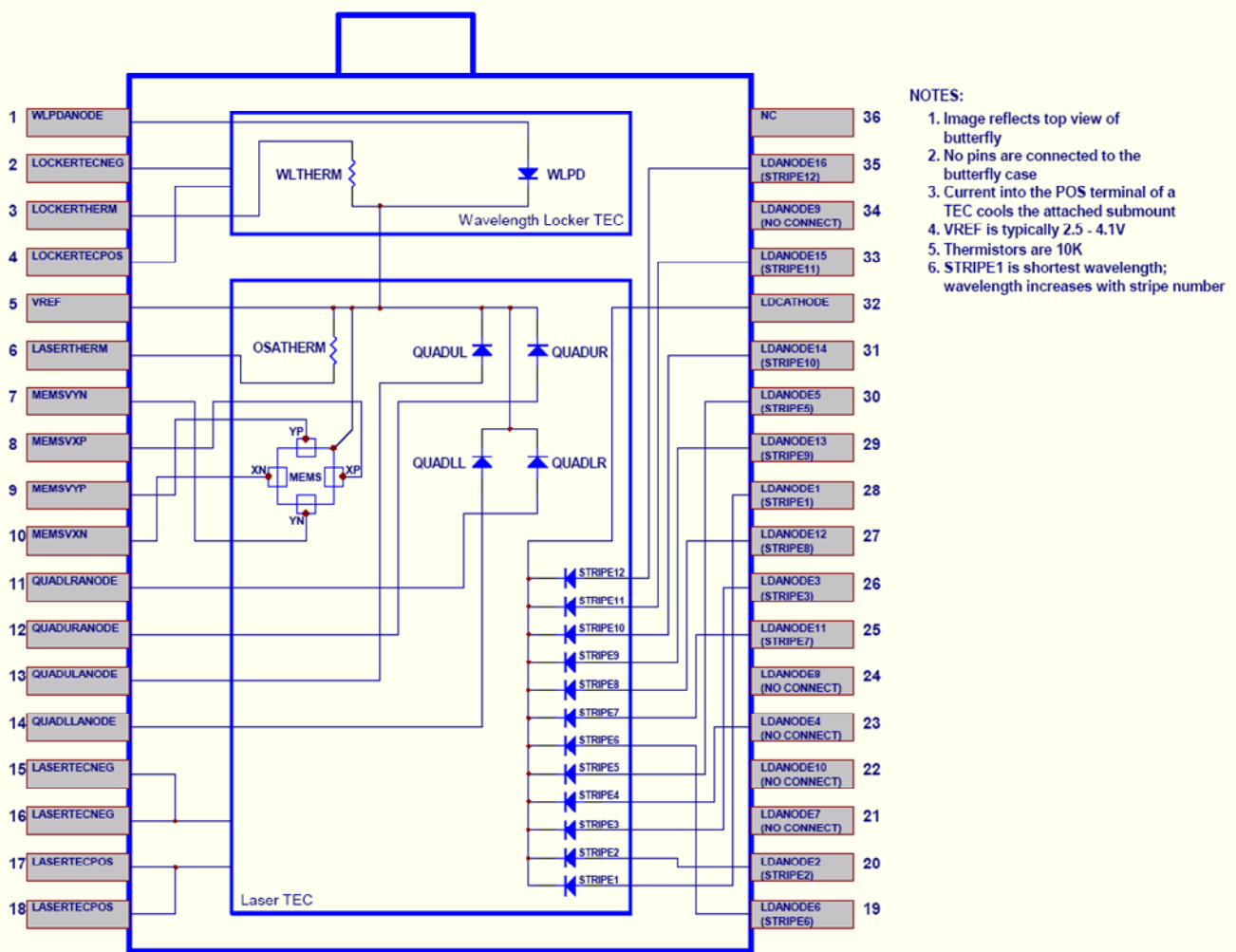
## Specifications:

<b>Absolute Maximum Ratings</b>						
<b>#</b>	<b>Parameter</b>	<b>Symbol</b>	<b>Min.</b>	<b>Max.</b>	<b>Unit</b>	<b>Comments</b>
1	Storage temperature	$T_{stg}$	-40	85	C	
2	Laser diode reverse voltage	$V_{R\_max}$		2	V	
3	Laser diode forward current	$I_{f\_max}$		400	mA	
4	Etalon photodiode reverse voltage	$V_{EPD\_max}$		10	V	
5	Etalon photodiode reverse current	$I_{EPD\_max}$		3	mA	
6	Quad detector reverse voltage	$V_{quad\_max}$		5	V	
7	Quad detector reverse current	$I_{quad\_max}$		3	mA	
8	MEMS X voltage	$V_{MEMS\ X\_max}$		210	V	
9	MEMS Y voltage	$V_{MEMS\ Y\_max}$		175	V	
10	MEMS current	$I_{MEMS\_max}$		100	$\mu$ A	
11	Laser TEC current	$I_{OSATEC\_max}$		3	A	
12	Locker TEC current	$I_{WLTEC\_max}$		1.5	A	
13	Lead Soldering			250C, 5sec		
14	Electrostatic discharge (ESD)	$V_{ESD}$		500	V	C=100pF, R=1.5k $\Omega$ , Human Body Model

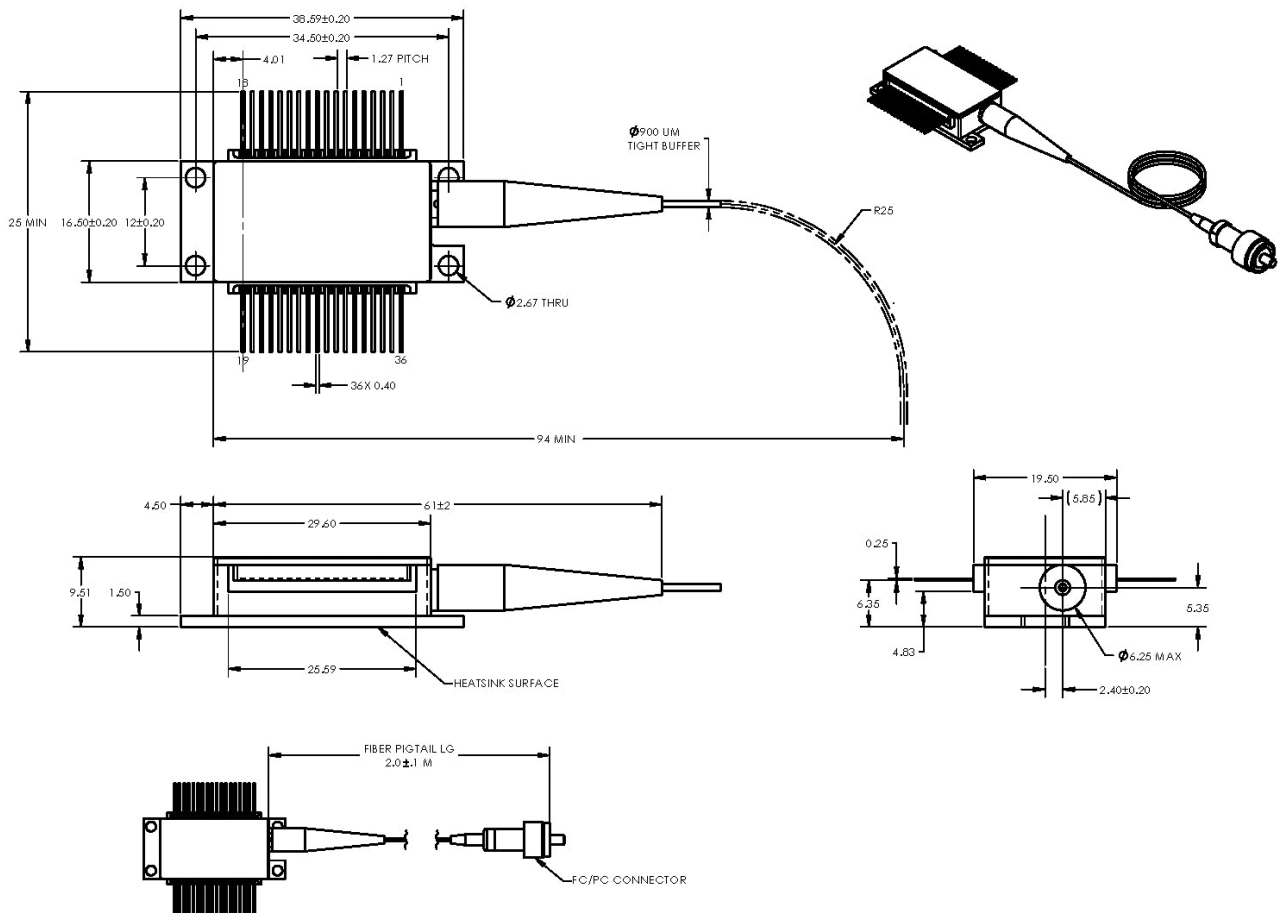
#	Parameter	Symbol	Test Condition	Min.	Typical	Max.	Unit
1	Fiber-coupled power	$P_{op}$	CW		10		mW
2	Wavelength range	$\lambda_{min}$		1528.77		1563.86	nm
4	Total Tuning Range			35			nm
5	Laser Set Temperature	$T_{set}$		27		60	C
6	Case Temperature	$T_{case}$	TEC Active	-5	-	75	C
7	Power variation over case temp			-0.5		0.5	dBm
8	Laser Forward Current @ rated power	$I_{op}$	-	-	-	320	mA
9	Laser Forward Voltage @ rated power	$V_{op}$	-	-	-	2.5	V
10	Threshold Current	$I_{th}$	-	-	75	-	mA
11	Spectral Width	$\Delta\lambda$	FWHM	-	2	5	MHz
12	Side-mode Suppression Ratio	SMSR	-	40	50	-	dB
13	Relative Intensity Noise	RIN	20 MHz to 10 GHz	-	-137	-130	dB/Hz
14	Extinction Ratio	TE/TM	-	20	-	-	dB
15	Optical Isolation	ISO	-	30	35	-	dB
16	MEMS X Voltage	$V_{xp}, V_{xn}$	200 BOL	-	-	205	V
17	MEMS Y Voltage	$V_{yp}, V_{yn}$	-	-	-	170	V
18	MEMS X snapdown Voltage*	$V_{x snap}$	-	$ V_{x cal}  + 10$	-	-	V
17	Laser TEC Current	$I_{TEC}$	-	-	-	2.1	A
18	Laser TEC Voltage	$V_{TEC}$	-	-	-	2.75	V
19	Laser Thermistor Resistance	$R_{TH}$	@ 25 C	9.5	10	10.5	k $\Omega$
20	Locker TEC Current	$I_{TEC}$	-	-	-	0.75	A
21	Locker TEC Voltage	$V_{TEC}$	-	-	-	1.25	V
22	Locker Thermistor Resistance	$R_{TH}$	@ 25 C	9.5	10	10.5	k $\Omega$
23	Etalon max/min ratio			2			
24	Total quad detector photocurrent				0.6		mA
25	Peak etalon photodiode photocurrent				0.02		mA
26	Pigtail Length	L		1			m
27	Connector Type				FC/UPC		
29	Power Dissipation	$P_{dis}$	70 C			2.0	W

# Pin Assignment

Pin	Description	Pin	Description	Pin	Description	Pin	Description
1	Locker PD anode	10	MEMs $V_{xn}$	19	LD Anode (+) 6	28	LD Anode (+) 1
2	Locker TEC (-)	11	Quad LR Anode	20	LD Anode (+) 2	29	LD Anode (+) 13
3	Locker Therm. (+)	12	Quad UR Anode	21	NC	30	LD Anode (+) 5
4	Locker TEC (+)	13	Quad UL Anode	22	NC	31	LD Anode (+) 14
5	MEMs/Qu/Th GND	14	Quad LL Anode	23	LD Anode (+) 4	32	LD Ground
6	Laser Therm. (+)	15	Laser TEC (-)	24	NC	33	LD Anode (+) 15
7	MEMs $V_{yn}$	16	Laser TEC (-)	25	LD Anode (+) 11	34	NC
8	MEMs $V_{xp}$	17	Laser TEC (+)	26	LD Anode (+) 3	35	LD Anode (+) 16
9	MEMs $V_{yp}$	18	Laser TEC (+)	27	LD Anode (+) 12	36	NC



## Mechanical Outline:



dimensions are in millimeters.

Connector is Samtec CLM-118-02 style.

Connection to customer system is via mating Samtec FTM-118-03 or custom flex jumper.



## International Sales Contacts

**Benelux and Nordics**  
Laser 2000 Benelux S.A.  
Rue du Moulin 18  
5650 Fraire, Belgium  
Tel: +32 (0) 71 610 640  
Fax: +32 (0) 71 610 649  
sales@laser2000.be

**Germany**  
Laser 2000 GmbH  
Argelsrieder Feld 14  
82234 Wessling  
Tel: +49 (0) 8153 405-0  
Fax: +49 (0) 8153 405-33  
contact@laser2000.de

**United Kingdom**  
Laser 2000 (UK) Ltd  
Britannia House  
Denford Road  
Ringstead, Northants NN14 4DF  
Tel: +44 (0) 1933 461 666  
Fax: +44 (0) 1933 461 699  
sales@laser2000.co.uk

**China**  
LuY Broadband Tech. Co.  
Room 824 Hua Tong Plaza  
No. 19A West Rd. of Che Gong Zhuang  
Haidan Dist, Beijing 100044  
Tel: +86 (8610) 68700016  
Fax: +86 (8610) 6845151  
william.lu@luy-tech.com

**Israel**  
Bitel Technologies Ltd.  
P.O. Box 94, Yehud  
Tel: +972-3-632 2655  
Fax: +972-3-632 2279  
info@bitel.co.il

**France**  
Laser 2000 S.A.  
Park d'Affaires  
3, Rue de la Plaine  
78860 Saint-Nom la Bretèche  
Tel: +33 (0) 1 30 80 00 60  
Fax: +33 (0) 1 30 80 00 40  
contact@laser2000.fr

**Japan**  
Marubun Corporation  
Components Dept.  
Marubun Daiya Bldg., 8-1  
Nihonbashi Odenmacho  
Chuo-ku, Tokyo 103-8577  
Tel: (03) 3639-9881  
Fax: (03) 5644-7627  
motizuki@marubun.co.jp



This is an OEM product that does not comply with the requirements of 21 CFR Subchapter 1 as applicable. It is the responsibility of the user to report the end product and to certify that it meets all applicable requirements.



**DANGER:** Fiber output is >10 mWatt at 1555 nm.  
Do not look into fiber end.

Santur Corporation  
40931 Encyclopedia Circle  
Fremont, CA 94538  
Phone: (510) 656-7130  
Fax (510) 656-7563  
[www.santurcorp.com](http://www.santurcorp.com)  
**1-866-TUNABLE**

© 2005 Santur Corporation. The Santur Corporation logo is a trademark of Santur Corporation. The ITLA-3020-C/L product is registered with the U.S. Office of Patents and Trademarks. All rights reserved. Santur Corporation reserves the right to make changes to the product(s) or information contained herein without notice. No liability is assumed as a result of their use of application.

TLB-2010-C-DS

This is a technical data sheet – parameters are subject to change without notice.